IV.    Claim 34, drawn to antisense to CA125, classifiable in class 536, subclasses 24.36 and 24.5.

Responsive to the Requirement for restriction, Applicants elect to prosecute the invention of group I, <u>with traverse</u>, Claims 1-19, 27, and 30-33 drawn to a polypeptide composition. Additionally, Applicant is required under 35 U.S.C § 121 to elect a single disclosed species for prosecution on the merits to which claims shall be restricted if no generic claim is finally held to be allowable. "Specifically, if Group I is elected above, application is required to pick a single combination of amino acid sequences for examination on the merits."

Applicants respectfully request reconsideration of the Requirement for Restriction, or in the alternative, modification of the Restriction Requirement to allow prosecution of more than one group of Claims designated by the Examiner in the present Application, for the reasons provided as follows.

Under 35 U.S.C § 121 "two or more independent and distinct inventions . . . in one Application may . . . be restricted to one of the inventions." Inventions are "independent" if "there is no disclosed relationship between the two or more subjects disclosed" (MPEP 802.01). The term "distinct" means that "two or more subjects as disclosed are related . . . but are capable of separate manufacture, use or sale as claimed, AND ARE PATENTABLE OVER EACH OTHER" (MPEP 802.01) (emphasis in original). However, even with patentably distinct inventions, restriction is not required unless one of the following reasons appear (MPEP 808.02):

1. Separate classification

2. Separate status in the art; or

3. Different field of search.

Further, under patent Office Examining Procedures, "[i]f the Search and Examination of an entire Application can be made without serious burden, the Examiner <u>must</u> examine it on the merits, even though it includes claims to distinct or independent inventions" (MPEP 803, Rev. 8, May 1988) (emphasis added).

The Examiner's assertions to the contrary notwithstanding, Applicants respectfully

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submit that conjoint examination and inclusion of all of the Clams of the present Application would not present an undue burden on the Examiner, and accordingly, withdrawal of the Requirement for Restriction, or, at the least, modification to include the Claims drawn to Group I and Group II is in order.

With respect to the requirement to elect a single species for examination on the merits, Applicants respectfully traverse this requirement for the following reasons:

I.    <u>Claim 1(b) providing the multiple repeat domains does not include a genus species relationship</u>

Claim 1(b) relates to a <u>multiple</u> repeat domain. A CA125 molecule can include a variety, if not <u>all</u> of the repeats in a single molecule. SEQ ID NO: 162 which show the recombinant molecule has been marked up as Appendix Tab A, to show the <u>multiple</u> repeats present in a single molecule. Claims to be restricted to different species must be mutually exclusive. The general test as to when claims are restricted respectively to different species is the fact that one claim recites limitations which under the disclosure are found in a first species, but not in a second, while a second claim recites limitations disclosed only from the second species and not the first. MPEP § 12.0[3[c]. As can be seen from an inspection of the recombinant molecule shown in SEQ ID NO: 162, CA125 molecule within the scope of claim 1(b) may have multiple repeat domains which are not mutually exclusive. Consequently, Applicants respectfully request examination on the multiple repeat domains as claimed.

This requirement to elect a single combination of repeats violates the basic right of the Applicants to claim his invention as he chooses. <u>In re Weber</u>, 580 F.2d 455 (USCC 1978).

II.   <u>Restriction is not appropriate if the claims are directed to substantially the same molecule</u>

Species are patentably distinct when they are related, but they are capable of separate manufacture and are patentable (novel and nonobvious) over each other. The multiple repeat domains contain multiple repeats wherein each repeat unit has five genomic exons. The variation in repeats set out in Claim 1 (b) are 82% identical and thus present related chemical compounds. The repeat domain is a sequence of 156 amino acids which are repeated multiple times within a discrete portion of the CA125 protein. The repeat domain has its own function and combines with the other domains to provide the overall function of the protein. The

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designated exons in the repeat domain can vary, but, this variance is minimal. Importantly, when the nucleic acids are expressed they form a CA125 protein.

Restriction is not appropriate if claims are directed to the same protein.

Applicant hereby elects the following species, with traverse, for prosecution on the merits.

1.      A CA125 molecule, comprising:

(a)      an extracellular amino terminal domain, comprising 5 genomic exons, wherein exon 1 comprises amino acids #1-33 of SEQ ID NO: 299, exon 2 comprises amino acids #34-1593 of SEQ ID NO: 299, exon 3 comprises amino acids #1594-1605 of SEQ ID NO: 299, exon 4 comprises amino acids #1606-1617 of SEQ ID NO: 299, and exon 5 comprises amino acids #1618-1637 of SEQ ID NO: 299;

(b)      a multiple repeat domain, wherein each repeat unit comprises 5 genomic exons, wherein exon 1 comprises amino acids #1-42 in any of SEQ ID NO: 186; exon 2 comprises amino acids #43-65 in any of SEQ ID NO: 197; exon 3 comprises amino acids #66-123 in any of SEQ ID NO: 244; exon 4 comprises amino acids #124-135 in any of SEQ ID NO: 271; exon 5 comprises amino acids #136-156 in any of SEQ ID NO: 287; and

(c)      a carboxy terminal domain comprising a transmembrane anchor with a short cytoplasmic domain, and further comprising 9 genomic exons, wherein exon 1 comprises amino acids #1-11 of SEQ ID NO: 300; exon 2 comprises amino acids #12-33 of SEQ ID NO: 300; exon 3 comprises amino acids #34-82 of SEQ ID NO: 300; exon 4 comprises amino acids #83-133 of SEQ ID NO: 300; exon 5 comprises amino acids #134-156 of SEQ ID NO: 300; exon 6 comprises amino acids #157-212 of SEQ ID NO: 300; exon 7 comprises amino acids #213-225 of SEQ ID NO: 300; exon 8 comprises amino acids #226-253 of SEQ ID NO: 300; exon 1 comprises amino acids #254-284 of SEQ ID NO: 300.

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In view of the above, withdrawal of the Requirement for the Restriction is requested, and an early action on the merits of the Claims is courteously solicited.

Respectfully Submitted,

BUTLER, SNOW, O'MARA, STEVENS & CANNADA

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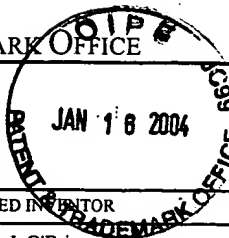                            Memphis, TN 38187
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| 09/965,738 | 09/27/2001 | Timothy J. O'Brien | 40715-260477 | 3856 |

7590    11/13/2003

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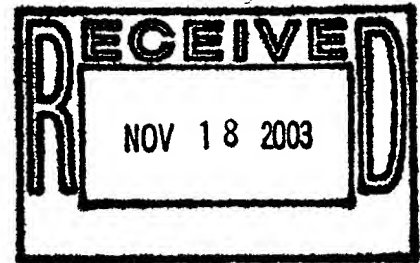P.O. Box 171443
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|---|
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| ART UNIT | PAPER NUMBER |
|---|---|
| 1635 | |

DATE MAILED: 11/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Butler, Snow, O'Mara

PTO-90C (Rev. 10/03)

*Notice of Non-Responsive Amendment*

Applicant's Amendment, filed September 15, 2003 is acknowledged.

*Election/Restrictions*

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Applicant's election without traverse of Group I (claims 1-19, 27, and 30-33) is acknowledged. With respect to election of a species, Applicant's election without traverse of the amino acid sequence set out in SEQ ID NO:162 is acknowledged. However, this election of species is non-responsive to the previous Restriction Requirement, filed June 10, 2003 for the following deficiencies: In the previous Restriction Requirement, at page 3, last paragraph, it is explicitly stated that, "Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Specifically, if Group I is elected above, Applicant is required to pick a single combination of amino acid sequences for examination on the merits" [emphasis added]. Applicant's election of SEQ ID NO:162 is not a single combination of amino acid sequences for examination, but is instead, the entire coding region of the CA125 gene.

Applicants are required to pick a single combination of amino acid sequences for examination on the merits.

Applicant is reminded, should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the Examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

Since the reply filed on June 11, 2003 appears to be *bona fide*, applicant is given a TIME PERIOD of ONE (1) MONTH or THIRTY (30) DAYS from the mailing date of this notice, whichever is longer, within which to submit an amendment in compliance with 37 CFR 1.121 in order to avoid abandonment. EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terra C. Gibbs whose telephone number is (703) 306-3221. If

attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John L.

LeGuyader can be reached on (703) 308-0447. The fax phone numbers for the organization

where this application or proceeding is assigned are (703) 746-8693 for regular communications

and (703) 872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 308-0196.

tcg
November 7, 2003

KAREN A. LACOURCIERE, PH.D
PRIMARY EXAMINER

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        164
A TVPFMVPFTL NFTITNLQYE EDMRHPGSRK

               195
12101   FNATERELQG ILKPLFRNSS LEYLYSGCRL ASLRPEKDSS AMAVDAICTH

           222                                    250
12151   RPDPEDLGLD RERLYWELSN LTNGIQELGP YTLDRNSLYV NGFTHRSSMP

              278                        171
12201   TTSTPGTSTV DVGTSGTPSS SPSPTAAGPL LMPFTLNFTI TNLQYEEDMR

                               197
12251   RTGSRKFNTM ESVLQGILKP LFKNTSVGPL YSGCRLTLLR PEKDGAATGV

              223
12301   DAICTHRLDP KSPGLNREQL YWELSKLTND IEELGPYTLD RNSLYVNGFT

           262              279
12351   HQSSVSTTST PGTSTVDLRT SGTPSSLSSP TIMAAGPLLV PFTLNFTITN

                173                             201
12401   LQYGEDMGHP GSRKFNTTER VLQGILGPIF KNTSVGPLYS GCRLTSLRSE

                234
12451   KDGAATGVDA ICIHHLDPKS PGLNRERLYW ELSQLTNGIK ELGPYTLDRN

                252                   280
12501   SLYVNGFTHR TSVPTSSTPG TSTVDLGTSG TPFSLPSPAT AGPLLVLFTL

               170                              202
12551   NFTITNLKYE EDMHRPGSRK FNTTERVLQT LLGPMFKNTS VGLLYSGCRL

              235
12601   TLLRSEKDGA ATGVDAICTH RLDPKSPGLD REQLYWELSQ LTNGIKELGP

                     267                    281
12651   YTLDRNSLYV NGFTHWIPVP TSSTPGTSTV DLGSGTPSSL PSPTAAGPLL

             182                             202
12701   VPFTLNFTIT NLQYEEDMHH PGSRKFNTTE RVLQGILGPM FKNTSVGLLY

                      236
12751   SGCRLTLLRS EKDGAATGVD AICTHRLDPK SPGVDREQLY WELSQLTNGI

                   263              283
12801   KELGPYTLDR NSLYVNGFTH QTSAPNTSTP GTSTVDLGTS GTPSSLPSPT

              170
12851   SAGPLLVPFT LNFTITNLQY EEDMRHPGSR KFNTTERVLQ GILKPLFKST

           198                   236
12901   SVGPLYSGCR LTLLRSEKDG AATGVDAICT HRLDPKSPGV DREQLYWELS

                          263              283
12951   QLTNGIKELG PYTLDRNSLY VNGFTHQTSA PNTSTPGTST VDLGTSGTPS

                 183
13001   SLPSPTSAGP LLVPFTLNFT ITNLQYEEDM HHPGSRKFNT TERVLQGILG

             202                          240
13051   PMFKNTSVGL LYSGCRLTLL RPEKNGAATG MDAICSHRLD PKSPGLNREQ

                                  256
13101   LYWELSQLTH GIKELGPYTL DRNSLYVNGF THRSSVAPTS TPGTSTVDLG

           283                   165
13151   TSGTPSSLPS PTTAVPLLVP FTLNFTITNL QYGEDMRHPG SRKFNTTERV

                    205
13201   LQGILGPLFK NSSVGPLYSG CRLISLRSEK DGAATGVDAI CTHHLNPQSP

                 238                             257
13251   GLDREQLYWQ LSQMTNGIKE LGPYTLDRNS LYVNGFTHRS SGLTTSTPWT

             285                        177
13301   STVDLGTSGT PSPVPSPTTA GPLLVPFTLN FTITNLQYEE DMHRPGSRKF

                        207
13351   NATERVLQGL LSPIFKNSSV GPLYSGCRLT SLRPEKDGAA TGMDAVCLYH

              227                                   265
13401   PNPKRPGLDR EQLYWELSQL THNITELGPY SLDRDSLYVN GFTHQNSVPT

           286                            186
13451   TSTPGTSTVY WATTGTPSSF PGHTEPGPLL IPFTFNFTIT NLHYEENMQH
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13501  PGSRKFNTTE  RVLQGILKPL  FKNTSVGPLY  SGCRLTSLRP  EKDGAATGMD
13551  AVCLYHPNPK  RPGLDREQLY  CELSQLTHNI  TELGPYSLDR  DSLYVNGFTH
13601  QNSVPTTSTP  GTSTVYWATT  GTPSSFPGHT  EPGPLLIPFT  FNFTITNLHY
13651  EENMQHPGSR  KFNTTERVLQ  GILKPLFKNT  SVGPLYSGCR  LTLLRPEKHE
13701  AATGVDTICT  HRVDPIGPGL  DRERLYWELS  QLTNSITELG  PYTLDRDSLY
13751  VNGFNPRSSV  PTTSTPGTST  VHLATSGTPS  SLPGRIAPVP  LLIPFTLNFT
13801  ITNLHYEENM  QHPGSRKFNT  TERVLQGILK  PLFKNTSVGP  LYSGCRLTLL
13851  RPEKHEAATG  VDTICTHRVD  PIGPGLDREX  LYWELSXLTX  XIXELGPYXL
13901  DRXSLYVNGF  XXXXXXXXTS  TPGTSXVXLX  TSGTPXXXPX  XTSAGPLLVP
13951  FTLNFTITNL  QYEEDMHHPG  SRKFNTTERV  LQGILGPMFK  NTSVGLLYSG
14001  CRLTLLRPEK  HGAATGMDAT  CSHRLDPRSP  GLDREQLYWE  LSQLTHCIXE
14051  LGPYTLDRNS  LYVNGFTHRS  SVAPTSTPGT  STVDLGTSGT  PSSLPSPTTA
14101  VPLLVPFTLN  FTITNLQYGE  DMRHPGSRKF  NTTERVLQGL  LGPLFKNSSV
14151  GPLYSGCRLI  SLRSEKDGAA  TGVDAICTHH  LNPQSPGLDR  EQLYWQLSQM
14201  TNGIKELGPY  TLDRNSLYVN  GFTHRSSGLT  TSTPWTSTVD  LGTSGTPSPV
14251  PSPTTAGPLL  VPFTLNFTIT  NLQYEEDMHR  PGSRKFNATE  RVLQGILSPI
14301  FKNSSVGPLY  SGCRLTSLRP  EKDGAATGMD  AVCLYHPNPK  RPGLDREQLY
14351  WELSQLTHNI  TELGPYSLDR  DSLYVNGFTH  QSSMTTTRTP  DTSTMHLATS
14401  RTPASLSGPT  TASPLLVLFT  INCTITNLQY  EEDMRRTGSR  KFNTMESVLQ
14451  GILKPLFKNT  SVGPLYSGCR  LTLLRPKKDG  AATGVDAICT  HRLDPKSPGL
14501  NREQLYWELS  KLTNDIEELG  PYTLDRNSLY  VNGFTHQSSV  STTSTPGTST
14551  VDLRTSGTPS  SLSSPTIMXX  XPLLXPFTLN  FTITNLXYEE  XMXXPGSRKF
14601  NTTERVLQGL  LRPLFKNTSV  SSLYSGCRLT  LLRPEKDGAA  TRVDAACTYR
14651  PDPKSPGLDR  EQLYWELSQL  THSTTELGPY  TLDRVSLYVN  TFNPRSSVPT
14701  TSTPGTSTVH  LATSGTPSSL  PGHTXXXPLL  XPFTLNFTIT  NLXYEEXMXX
14751  PGSRKFNTTE  RVLQGILKPL  FRNSSLEYLY  SGCRLASLRP  EKDSSAMAVD
14801  AICTHRPDPE  DLGLDRERLY  WELSNLTNGI  QELGPYTLDR  NSLYVNGFTH
14851  RSSFLTTSTP  WTSTVDLGTS  GTPSPVPSPT  TAGPLLVPFT  LNFTITNLQY
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16351  NGAATGMDAT  CTHRLDPKSP  GLDREXLYWE  LSXLTXXIXE  LGPYXLDRXS ----
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16451  FTITNLXYEE  XMXXPGSRKF  NTTERVLQGL  LKPLFKNSSL  EYLYSGCRLA
16501  SLRPEKDSSA  MAVDAICTHR  PDPEDLGLDR  ERLYWELSNL  TNGIQELGPY
16551  TLDRNSLYVN  GFTHRSSMPT  TSTPGTSTVD  VGTSGTPSSS  PSPTTAGPLL
16601  IPFTLNFTIT  NLQYGEDMGH  PGSRKFNTTE  RVLQGILGPI  FKNTSVGPLY
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16701  KELGPYTLDR  NSLYVNGFTH  RTSVPTTSTP  GTSTVDLGTS  GTPFSLPSPA
16751  TAGPLLVLFT  LNFTITNLKY  EEDMHRPGSR  KFNTTERVLQ  TILGPMFKNT
16801  SVGLLYSGCR  LTLLRSEKDG  AATGVDAICT  HRLDPKSPGL  DREXLYWELS
16851  XLTXXIXELG  PYXLDRXSLY  VNGFXXXXXX  XXTSTPGTSX  VXLXTSGTPX
16901  XXPXXTXXXP  LLXPFTLNFT  ITNLXYEEXM  XXPGSRKFNT  TERVLQGILR
16951  PVFKNTSVGP  LYSGCRLTLL  RPKKDGAATK  VDAICTYRPD  PKSPGLDREQ
17001  LYWELSQLTH  SITELGPYTQ  DRDSLYVNGF  THRSSVPTTS  IPGTSAVHLE
17051  TTGTPSSFPG  HTEPGPLLIP  FTFNFTITNL  RYEENMQHPG  SRKFNTTERV
17101  LQGILTPLFK  NTSVGPLYSG  CRLTLLRPEK  QEAATGVDTI  CTHRVDPIGP
17151  GLDRERLYWE  LSQLTNSITE  LGPYTLDRDS  LYVDGFNPWS  SVPTTSTPGT
17201  STVHLATSGT  PSPLPGHTAP  VPLLIPFTLN  FTITDLHYEE  NMQHPGSRKF
17251  NTTERVLQGL  LKPLFKSTSV  GPLYSGCRLT  LLRPEKHGAA  TGVDAICTLR
17301  LDPTGPGLDR  ERLYWELSQL  TNSITELGPY  TLDRDSLYVN  GFNPWSSVPT
17351  TSTPGTSTVH  LATSGTPSSL  PGHTTAGPLL  VPFTLNFTIT  NLKYEEDMHC
17401  PGSRKFNTTE  RVLQSIHGPM  FKNTSVGPLY  SGCRLTLLRS  EKDGAATGVD
17451  AICTHRLDPK  SPGLDREXLY  WELSXLTXXI  XELGPYXLDR  XSLYVNGFXX
17501  XXXXXXTSTP  GTSXVXLXTS  GTPXXXPXXT  XXXPLLXPFT  LNFTITNLXY
17551  EEXMXXPGSR  KFNTTERVLQ  GILXPXFKXT  SVGXLYSGCR  LTLLRXEKXX
17601  AATXVDXXCX  XXXDPXXPGL  DREXLYWELS  XLTNSITELG  PYTLDRDSLY
17651  VNGFTHRSSM  PTTSIPGTSA  VHLETSGTPA  SLPGHTAPGP  LLVPFTLNFT
17701  ITNLQYEEDM  RHPGSRKFNT  TERVLQGILK  PLFKSTSVGP  LYSGCRLTLL
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17901   CRLTLLRXEK XXAATXVDXX CXXXXDPXXP GLDREXLYWE LSXLTXXIXE
17951   LGPYXLDRXS LYVNGFHPRS SVPTTSTPGT STVHLATSGT PSSLPGHTAP
18001   VPLLIPFTLN FTITNLHYEE NMQHPGSRKF NTTERVLQGL LGPMFKNTSV
18051   GLLYSGCRLT LLRPEKNGAA TGMDAICSHR LDPKSPGLDR EXLYWELSXL
18101   TXXIXELGPY XLDRXSLYVN GFXXXXXXXX TSTPGTSXVX LXTSGTPXXX
18151   PXXTXXXPLL XPFTLNFTIT NLXYEEXMXX PGSRKFNTTE RVLQGILXPX
18201   FKXTSVGXLY SGCRLTLLRX EKXXAATXVD XXCXXXXDPX XPGLDREXLY
18251   WELSXLTXXI XELGPYXLDR XSLYVNGFTH QNSVPTTSTP GTSTVYWATT
18301   GTPSSFPGHT EPGPLLIPFT FNFTITNLHY EENMQHPGSR KFNTTERVLQ
18351   GILTPLFKNT SVGPLYSGCR LTLLRPEKQE AATGVDTICT HRVDPIGPGL
18401   DREXLYWELS XLTXXIXELG PYXLDRXSLY VNGFXXXXXX XXTSTPGTSX
18451   VXLXTSGTPX XXPXXTXXXP LLXPFTLNFT ITNLXYEEXM XXPGSRKFNT
18501   TERVLQGILX PXFKXTSVGX LYSGCRLTLL RXEKXXAATX VDXXCXXXXD
18551   PXXPGLDREX LYWELSXLTX XIXELGPYXL DRXSLYVNGF THRSSVPTTS
18601   SPGTSTVHLA TSGTPSSLPG HTAPVPLLIP FTLNFTITNL HYEENMQHPG
18651   SRKFNTTERV LQGILKPLFK STSVGPLYSG CRLTLLRPEK HGAATGVDAI
18701   CTLRLDPTGP GLDREXLYWE LSXLTXXIXE LGPYXLDRXS LYVNGFXXXX
18751   XXXXTSTPGT SXVXLXTSGT PXXXPXXTXX XPLLXPFTLN FTITNLXYEE
18801   XMXXPGSRKF NTTERVLQGL LXPXFKXTSV GXLYSGCRLT LLRXEKXXAA
18851   TXVDXXCXXX XDPXXPGLDR EXLYWELSXL TXXIXELGPY XLDRXSLYVN
18901   GFTHRTSVPT TSTPGTSTVH LATSGTPSSL PGHTAPVPLL IPFTLNFTIT
18951   NLQYEEDMHR PGSRKFNTTE RVLQGILSPI FKNSSVGPLY SGCRLTSLRP
19001   EKDGAATGMD AVCLYHPNPK RPGLDREQLY CELSQLTHNI TELGPYSLDR
19051   DSLYVNGFTH QNSVPTTSTP GTSTVYWATT GTPSSFPGHT XXXPLLXPFT
19101   LNFTITNLXY EEXMXXPGSR KFNTTERVLQ GILXPXFKXT SVGXLYSGCR
19151   LTLLRXEKXX AATXVDXXCX XXXDPXXPGL DREXLYWELS XLTXXIXELG
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19201   PYXLDRXSLY  VNGFTHWSSG  LTTSTPWTST  VDLGTSGTPS  PVPSPTTAGP
                              177
19251   LLVPFTLNFT  ITNLQYEEDM  HRPGSRKFNA  TERVLQGILS  PIFKNTSVGP
        208                              2
19301   LYSGCRLTLL  RPEKQEAATG  VDTICTHRVD  PIGPGLDREX  LYWELSXLTX
                              2              7
19351   XIXELGPYXL  DRXSLYVNGF  XXXXXXXXTS  TPGTSXVXLX  TSGTPXXXPX
                2
19401   XTXXXPLLXP  FTLNFTITNL  XYEEXMXXPG  SRKFNTTERV  LQGILXPXFK
                2
19451   XTSVGXLYSG  CRLTLLRXEK  XXAATXVDXX  CXXXXDPXXP  GLDREXLYWE
                              258                285
19501   LSXLTXXIXE  LGPYXLDRXS  LYVNGFTHRS  FGLTTSTPWT  STVDLGTSGT
                              179
19551   PSPVPSPTTA  GPLLVPFTLN  FTITNLQYEE  DMHRPGSRKF  NTTERVLQGL
        219
19601   LTPLFRNTSV  SSLYSGCRLT  LLRPEKDGAA  TRVDAVCTHR  PDPKSPGLDR
                2                              2
19651   EXLYWELSXL  TXXIXELGPY  XLDRXSLYVN  GFXXXXXXXX  TSTPGTSXVX
                2                2
19701   LXTSGTPXXX  PXXTXXXPLL  XPFTLNFTIT  NLXYEEXMXX  PGSRKFNTTE
                              2
19751   RVLQGILXPX  FKXTSVGXLY  SGCRLTLLRX  EKXXAATXVD  XXCXXXXDPX
                              2              267
19801   XPGLDREXLY  WELSXLTXXI  XELGPYXLDR  XSLYVNGFTH  WIPVPTSSTP
        281                              175
19851   GTSTVDLGSG  TPSSLPSPTT  AGPLLVPFTL  NFTITNLQYG  EDMGHPGSRK
                      201
19901   FNTTERVLQG  ILGPIFKNTS  VGPLYSGCRL  TSLRSEKDGA  ATGVDAICIH
                2                              7
19951   HLDPKSPGLD  REXLYWELSX  LTXXIXELGP  YXLDRXSLYV  NGFXXXXXXX
                2                              2
20001   XTSTPGTSXV  XLXTSGTPXX  XPXXTXXXPL  LXPFTLNFTI  TNLXYEEXMX
                              7
20051   XPGSRKFNTT  ERVLQGILXP  XFKXTSVGXL  YSGCRLTLLR  XEKXXAATXV
                              2
20101   DXXCXXXXDP  XXPGLDREXL  YWELSXLTXX  IXELGPYXLD  RXSLYVNGFT
        264                283
20151   HQTFAPNTST  PGTSTVDLGT  SGTPSSLPSP  TSAGPLLVPF  TLNFTITNLQ
              183                    202
20201   YEEDMHHPGS  RKFNTTERVL  QGILGPMFKN  TSVGLLYSGC  RLTLLRPEKN
                              2
20251   GAATRVDAVC  THRPDPKSPG  LDREXLYWEL  SXLTXXIXEL  GPYXLDRXSL
                2                    2
20301   YVNGFXXXXX  XXXTSTPGTS  XVXLXTSGTP  XXXPXXTAPV  PLLIPFTLNF
              188                              213
20351   TITNLHYEEN  MQHPGSRKFN  TTERVLQGIL  RPLFKSTSVG  PLYSGCRLTL
                              242
20401   LRPEKHGAAT  GVDAICTLRL  DPTGPGLDRE  RLYWELSQLT  NSVTELGPYT
              273                    290
20451   LDRDSLYVNG  FTQRSSVPTT  SIPGTSAVHL  ETSGTPASLP  GHTAPGPLLV
              169                              198
20501   PFTLNFTITN  LQYEVDMRHP  GSRKFNTTER  VLQGILKPLF  KSTSVGPLYS
                              239
20551   GCRLTLLRPE  KRGAATGVDT  ICTHRLDPLN  PGLDREQLYW  ELSKLTRGII
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20601  ELGPYLLDRG  SLYVNGFTHR  NFVPITSTPG  TSTVHLGTSE  TPSSLPRPIV
                        260              292
20651  PGPLLVPFTL  NFTITNLQYE  EAMRHPGSRK  FNTTERVLQG  ILRPLFKNTS
                   166
20701  IGPLYSSCRL  TLLRPEKDKA  ATRVDAICTH  HPDPQSPGLN  REQLYWELSQ
       212                                  247
20751  LTHGITELGP  YTLDRDSLYV  DGFTHWSPIP  TTSTPGTSIV  NLGTSGIPPS
                               268                         293
20801  LPETTXXXPL  LXPFTLNFTI  TNLXYEEXMX  XPGSRKFNTT  ERVLQGILKP
              2
20851  LFKSTSVGPL  YSGCRLTLLR  PEKDGVATRV  DAICTHRPDP  KIPGLDRQQL
            198                                        233
20901  YWELSQLTHS  ITELGPYTLD  RDSLYVNGFT  QRSSVPTTST  PGTFTVQPET
                                    274
20951  SETPSSLPGP  TATGPVLLPF  TLNFTITNLQ  YEEDMHRPGS  RKFNTTERVL
       294                                181
21001  QGILMPLFKN  TSVSSLYSGC  RLTLLRPEKD  GAATRVDAVC  THRPDPKSPG
                   220
21051  LDRERLYWKL  SQLTHGITEL  GPYTLDRHSL  YVNGFTHQSS  MTTTRTPDTS
                   232                        266
21101  TMHLATSRTP  ASLSGPTTAS  PLLVLFTINF  TITNLRYEEN  MHHPGSRKFN
            289                            185
21151  TTERVLQGIL  RPVFKNTSVG  PLYSGCRLTL  LRPKKDGAAT  KVDAICTYRP
                        215
21201  DPKSPGLDRE  QLYWELSQLT  HSITELGPYT  QDRDSLYNVG  FTQRSSVPTT
                   231                                      275
21251  SVPGTPTVDL  GTSGTPVSKP  GPSAASPLLV  LFTLNGTITN  LRYEENMQHP
            295                                190
21301  GSRKFNTTER  VLQGILRSLF  KSTSVGPLYS  GCRLTLLRPE  KDGTATGVDA
                                    216
21351  ICTHHPDPKS  PRLDREQLYW  ELSQLTHNIT  ELGHYALDND  SLFVNGFTHR
                   225
21401  SSVSTTSTPG  TPTVYLGASK  TPASIFGPSA  ASHLLILFTL  NFTITNLRYE
       255           296                                192
21451  ENMWPGSRKF  NTTERVLQGL  LRPLFKNTSV  GPLYSGSRLT  LLRPEKDGEA
                                    211
21501  TGVDAICTHR  PDPTGPGLDR  EQLYLELSQL  THSITELGPY  TLDRDSLYVN
                   226
21551  GFTHRSSVPT  TSIGVVSEEP  FTLNFTINNL  RYMADMGQPG  SLKFNITDNV
       254                                193
21601  MKHILSPLFQ  RSSLGARYTG  CRVIALRSVK  NGAETRVDLL  CTYLQPLSGP
                   209
21651  GLPIKQVFHE  LSQQTHGITR  LGPYSLDKDS  LYLNGYNEPG  LDEPPTTPKP
                        248                        276
21701  ATTFLPPLSE  ATTAMGYHLK  TLTLNFTISN  LQYSPDMGKG  SATFNSTEGV
       297                             144
21751  LQHLLRPLFQ  KSSMGPFYLG  CQLISLRPEK  DGAATGVDTT  CTYHPDPVGP
                   221
21801  GLDIQQLYWE  LSQLTHGVTQ  LGFYVLDRDS  LFINGYAPQN  LSIRGEYQIN
       249
21851  FHIVNWNLSN  PDPTSSEY
       298
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